

XI.—On a Crangon, some Schizopoda, and Cumacea new to or rare in the British Seas. By the Rev. Canon A. M. NORMAN, M.A., D.C.L., F.L.S.*

THE Scotch Fishery Board have sent me for examination some of the higher Crustacea which have been met with during the past year. Among them are many species of interest, and these are recorded in the following notes. With few exceptions the several forms are now first published as members of our Fauna, although some of them have been long known to myself. Mr. Brook and Mr. Scott must be congratulated on the success which has brought these species to light, and their discovery will, I trust, lead other naturalists to realize how much remains to be done among the great class of Crustacea in our seas, and that careful investigation will be amply rewarded even among the higher orders; but no real progress can be made with respect to the food of fishes until investigators are familiar with those smaller Crustacea which constitute so large a portion of that food. As an instance of this I may mention that Dr. Baird, many years ago, published an interesting paper on the food of the vendace. No author at that time was more competent to undertake the task, and one of the Entomostraca in the stomachs was new to science, *Bosmina coregoni*, and has not as yet been met with elsewhere in our islands than in Lochmaben. Yet when I repeated these investigations three years ago, I found that while the vendace fed on those species recorded by Dr. Baird, a large portion, perhaps in bulk the largest portion, of its food, was *Leptodora hyalina*, an Entomostracan unknown to Dr. Baird, and which, from its extraordinary tenuity, delicacy, and transparency, and its totally different form from that usual among Cladocera, was no doubt passed over by my old friend as something he could not make out, though it is much larger than the species he satisfactorily determined. A "more dainty dish to set before a" fish cannot well be imagined than *Leptodora hyalina*, an animal so transparent that, notwithstanding its size, it can scarcely be detected in a glass of water unless held up to the light.

* [It seems desirable that this paper should be printed in the 'Annals,' as 'The Fourth Annual Report of the Fishery Board of Scotland,' in which it has already been published, is hardly likely to have extensive circulation among carcinologists.—A. M. N.]

Order CARIDA.

Genus CRANGON, Fabricius.

Crangon (Cheraphilus) neglectus, G. O. Sars.

Cheraphilus neglectus, G. O. Sars, "Oversigt af Norges Crustaceer" (Christ. Vidensk. Forhandl.), 1882; p. 45, pl. i. fig. 7.

Rostrum *well rounded at the extremity*. Carapace with a single central spine, and a *second small tubercle-like spine on the central line behind it*, without the lobe-like folds of *fasciatus*, and with the sulcus which in that species defines their lateral regions much less distinct and deep. Antennal scale not greatly widened at the base. Last joints of maxilliped not broadly flattened. Second peræopod longer, reaching one third the length of the hand of first pair; its chela very weak, the finger and thumb parallel and touching each other, and apparently altogether too feeble to be used for grasping. Body not speckled with brown. Carapace more or less suffused with rufous or chestnut colour; a band across the fourth segment of pleon, and a second across the telson and uropods of the same colour.

"Ad oras meridionales et occidentales Norwegiæ in prof. 2-6 orgyrum fundo arenoso" (G. O. Sars). Haakelsund, Kors Fiord, Norway, 3 fathoms (A. M. N.), Tarbert, Loch Fyne (*Scotch Fishery Laboratory*).

I took six specimens of this shrimp, male and female, in 1878, in 3 fathoms water, at Haakelsund, Kors Fiord, West Norway, but at the time, from its general resemblance to *C. fasciatus*, passed it over as that species, as no doubt Norwegian naturalists had also done. In 1882 it was described by Prof. G. O. Sars. Mr. Scott has now added it to the British fauna, having forwarded to me for examination two or three small specimens which were taken at Tarbert. No other British specimens of this species are in my own collection, but it is not improbable that some of the northern specimens which have been referred to *C. fasciatus* belong to this new form. The two species to the unaided eye resemble each other closely, and one is apt to be led astray by the circumstance that, like *C. fasciatus*, *C. neglectus* commonly has the carapace dark-coloured, and a band of colour across the third segment of the pleon, and another across the telson and uropods; but the colour of these bands is chestnut ("badia," Sars) in *neglectus*, but deep umber-brown in *fasciatus*.

Crangon fasciatus, Risso.

Crangon fasciatus, Risso, Crust. de Nice, p. 82, pl. iii. fig. 5, and Hist. Nat. de l'Eur. Mérid. v. p. 64; Milne-Edwards, Hist. des Crust. ii.

p. 342; Bell, Brit. Crust. p. 259; White, Pop. Hist. Brit. Crust. p. 107; Lucas, Hist. Nat. Anim. Artic. Alger. p. 38; Heller, Crust. des südlichen Europa, p. 228, pl. vii. fig. 10.

Ægeon fasciatus, Kinahan, Britannic Species of *Crangon* and *Galathea*, p. 76, and woodcut.

Rostrum *broadly and abruptly truncate at the extremity*, its sides bending upwards, so that it is deeply sulcate in the centre. Carapace bearing a single central spine, on either side of which and between it and the margin are three slight lobe-like folds. Between this portion of the carapace and its hinder margin is a deeply cut sulcus arching forwards at the sides. Antennal scale short and very broad, unusually expanded on the inner side at the base. Maxillipeds with the two terminal joints broad and flattened. Second peræopods very short, just reaching the base of the hand of the first pair, the chela well developed (for a *Crangon*). Animals more or less speckled with dark brown, the carapace sometimes being entirely suffused with that colour. The epimera of the second, third, and fourth segments of the pleon are generally marked with the same colour, and also two transverse bands, one on the fourth segment, the other across the telson and uropods.

Specimens of this species are in my collection from Jersey (*Sinel and Co.*), Guernsey and Falmouth (*A. M. N.*), Starcross, Devon (*Mr. C. Parker*), Weymouth (*Mr. P. H. Gosse*). I have also recorded it from Shetland, but cannot at this moment lay my hands on the specimens to re-examine them.

Other recorded localities are Salcombe Bay (*Mr. Alder*), Dublin and Belfast (*Dr. Kinahan*), Galway (*Dr. Melville*), Mediterranean (various authorities).

Order SCHIZOPODA.

Family Euphausiidæ.

Genus BOREOPHAUSIA.

Boreophausia, G. O. Sars, Preliminary Notice on the Schizopoda of H.M.S. 'Challenger' expedition (Christ. Vidensk. Forhandl. 1883, no. 7), p. 12; Report 'Challenger' Schizopoda (vol. xiii.), 1885, p. 64.

Boreophausia Raschii (M. Sars).

Thysanopoda Raschii, M. Sars, "Om Slægten *Thysanopoda* og dens Norske Arter" (Christ. Vidensk. Forhandl. 1863), p. 14.

Euphausia Raschii, G. O. Sars, "Oversigt af Norges Crustaceer" (Christ. Vidensk. Forhandl. 1882, no. 18), p. 51.

First found by M. Sars in the Christiania Fiord, and subsequently by his son, Prof. G. O. Sars, on the west coast of Norway.

It has lately been added to the British fauna. Dr. Henderson has forwarded to me specimens for examination which were taken in the tow-net in the Firth of Forth by the Scottish Marine Station. I procured it in the same way in July last in Loch Fyne, when with Mr. J. Murray on board the 'Medusa,' the vessel of the Scottish Marine Station, and, subsequently to my leaving, it was again taken by the 'Medusa' between the islands of Bute and Cumbrae; and now (February 1886) Prof. Ewart has found specimens in the stomachs of herrings caught on the east coast, and examined by the Scotch Fishery Board.

Genus NYCTIPHANES, M. Sars.

Nyctiphanes, G. O. Sars, Preliminary Notices Schizopoda, 'Challenger' (Christ. Vidensk. Forhandl. 1883), p. 23; Report 'Challenger' Schizopoda (vol. xiii. 1885), p. 114.

Nyctiphanes norvegica (M. Sars).

Thysanopoda norvegica, M. Sars, Forhandl. Scand. Naturf. i Christiania, 1856, p. 169; id. "Om Slægten *Thysanopoda*" (Christ. Vidensk. Forhandl. 1863), p. 2; G. O. Sars, "Oversigt af Norges Crustaceer" (Christ. Vidensk. Forhandl. 1882), p. 50; Norman, Last Report Dredging among the Shetland Isles (Brit. Assoc. Report, 1868), p. 265.

Thysanopoda nana, M. Sars, Om Slægten *Thysanopoda*, p. 15 (junior).

Nyctiphanes norvegica has been found throughout the entire length of the Norwegian coast from Christiania to Vadso (G. O. Sars); and I am indebted to Prof. G. O. Sars for Norwegian specimens.

It has been known to me as a member of the British fauna for twenty-five years, having been first found by myself at Shetland, and a few years afterwards sent to me about the same time by Mr. David Robertson from the Firth of Clyde, and by Mr. Thomas Edward from the Moray Firth.

The following are additional localities of specimens in my collection:—

1. Tow-net, Valentia Island, 1870. A. M. N.
2. Taken seven miles off the Berling Islands, coast of Portugal, by Mr. Davidson, July 22, 1870, when on board the 'Porcupine.'
3. 'Porcupine,' 1869; lat. 60° 34' N., long. 4° 40' W.
4. 'Triton,' August 1882, abundant in the Faroe Channel.
5. Eastport, N.E. America, from Prof. S. I. Smith.
6. Observed in 1880 by me when on board the French exploring-vessel 'Le Travailleur' in the Bay of Biscay.
7. During the summer of last year I procured it with the towing-net, when with Mr. Murray in the 'Medusa,' in Loch

Fyne. Subsequently other specimens were forwarded to me which had been taken in Loch Long (Clyde); these exceed in dimensions all others that I have seen, and measure 50 millim. long.

8. Lastly, Prof. Ewart has sent me specimens taken from the stomachs of herrings on the east coast of Scotland.

The species would thus seem to be universally distributed over the North Atlantic Ocean, though it was not met with by the 'Challenger' expedition.

Nyctiphanes may be at once known from the other genera of the Euphausiidae by the presence of a scale-like process on the basal joint of the antennules, which is projected upwards, and would seem to form a sort of screen for the eyes.

Tribe MYSIDEA.

Genus ERYTHROPS, G. O. Sars.

Erythropus pygmaea, G. O. Sars.

Nematopus elegans, G. O. Sars, Beretning om en i Sommeren 1862 foretagen Zoologisk Reise i Christianias og Trondhjems Stifter, p. 42.

Nematopus pygmaea, G. O. Sars, Beretning om en i Sommeren 1865 foretagen Zoologisk Reise ved Kysterne af Christianias og Christiansands Stifter, p. 17.

Erythropus pygmaea, G. O. Sars, Monographi over de ved Norges Kyster forekommende Mysider, 1870, p. 33, pl. ii. figs. 20-28.

A very small species, about 6 millim. long, now added to the British fauna; the specimens procured by the Fishery Board Laboratory at Tarbert.

Genus MYSIDOPSIS, G. O. Sars.

Mysidopsis gibbosa, G. O. Sars.

Mysidopsis gibbosa, G. O. Sars, Beretning om en i Sommeren 1863 foretagen Zoologisk Reise, p. 28; Monographi over de ved Norges Kyster forekommende Mysider, 1872, p. 23, pl. viii. figs. 1-3.

A single specimen taken by myself at Valentia, Ireland, in 1870. Three females sent for examination by the Fishery Board Laboratory which were procured on a *Zostera*-bed at Tarbert, Loch Fyne, 1885. Now first recorded as British.

Mysidopsis angusta, G. O. Sars.

Mysidopsis angusta, G. O. Sars, Beretning om en i Sommeren 1863 foretagen Zoologisk Reise i Christiania Stift, 1864, p. 30; Monographi over Norges Mysider, 1872, p. 23, pl. viii. figs. 1-13.

A drawing of this species is before me, which was made

from a specimen sent for examination by Mr. T. Edward* from Banff in August 1863; a second British specimen has now (March 1886) been taken by the Fishery Board at Tarbert, Loch Fyne.

On the Norwegian coast it has been found in the Hardanger and Christiania Fiords and at Aalesund.

Mysidopsis angusta has a very narrow, lanceolate antennal scale, which is ciliated all round, and is about twice the length of the peduncle of the antennules. The telson is cleft at the apex, and the sides of the cleft are quite plain, that is, without any teeth or serration within the cleft, and by this character the species may be distinguished not only from the other species of *Mysidopsis*, but from all Mysidea which have as yet been described.

Genus LEPTOMYSIS, G. O. Sars.

Leptomysis lingvura, G. O. Sars.

Mysis lingvura, G. O. Sars, Beretning om en i Sommeren 1865 foretagen Zoologisk Reise, p. 21; Monographi over de ved Norges Kyster forekommende Mysider, 1879, p. 35, pl. xi.

Although not hitherto recorded as occurring in our seas, *Leptomysis lingvura* was found by me twenty-six years ago in great abundance at Howden, County Durham, and shortly afterwards at Seaham Harbour. It remained with a MS. name in my collection until it was described by Prof. G. O. Sars. In 1883 it was sent to me by Mr. C. Parker from Starcross, Devon, and last year one or two specimens were forwarded to me for determination from Tarbert, Loch Fyne, by the Scotch Fishery Board. It would thus seem that the species is widely distributed round our coast.

Genus MYSIS, Latreille.

Mysis inermis, Rathke.

Mysis inermis, Rathke, Beiträge zur Fauna Norvegens, p. 20; Lilljeborg, Eftversigt af Vet. Akad. Handl. 1852, p. 3.

Mysis cornuta, Kröyer, Nat. Tidsskr. 3 R. B. I. p. 26, pl. i. fig. 3, a-g; Goës, Crust. Decap. Podoph. Marina Sveciæ, p. 14.

Mysis truncatula, G. O. Sars, Beretning om en i Sommeren 1863 foretagen Zoologisk Reise, p. 16 (monstrositas).

Mysis inermis, Norman, Last Report Dredging among the Shetland Isles (Rept. Brit. Assoc. 1868), p. 266; G. O. Sars, Monographi over ved Norges Kyster forekommende Mysider, 1879, p. 54, pl. xxvii.

Specimens of this species are in my collection from the

* This species is called, in a Catalogue of Crustacea at the end of Smiles's 'Life of a Scotch Naturalist,' "*Mysis mixta*." It is much to be regretted that that list should have been published without revision.

following habitats:—Baltic Sea (*Prof. Lovén*), Bergen, Norway (*Prof. Lilljeborg*). Kors Fiord, 1878, and Lervig, Hardanger Fiord, Norway, 1879; Shetland, 1867, in rock-pools; Guernsey, 1865; Oban, 1877; Cullercoats, Northumberland (*A. M. N.*). Tarbert, Loch Fyne, 1885 (*Scotch Fishery Laboratory*). It has been sent to me for examination from the Moray Firth by Mr. T. Edward.

Mysis arenosa, G. O. Sars.

Mysis arenosa, G. O. Sars, Nye Bidrag til kundskaben om Middelhavets Invertebratfauna, I. Middelhavets Mysider, 1876, p. 16, pls. v. & vi.

This small species, described from the Mediterranean, was added to the British fauna by Mr. C. Parker, who found specimens, in 1884, at Starcross, Devon, which he forwarded to me; and specimens have now been taken at Tarbert, Loch Fyne, by the Scotch Fishery Laboratory.

Mysis Lamornæ, Couch.

Mysis Lamornæ, R. Q. Couch, The Zoologist, 1856, p. 5286; Norman, Ann. & Mag. Nat. Hist. ser. 3, vol. vi. 1860, pl. viii. figs. 4-6; Goës, Crustacea Decapoda Podophthalmia Sveciæ, p. 15.

Mysis aurantia, G. O. Sars, Beretning om en i Sommeren 1863 foretagen Reise, p. 20.

Mysis Lamornæ, G. O. Sars, Monographi over de ved Norges Kyster forekommende Mysider, 1879, p. 65, pl. xxx.

This species is known to me from the following localities, whence specimens are in my collection:—Falmouth (*A. M. N.*), Banff (*Mr. T. Edward*), Seaham, County Durham (*Mr. G. Hodge*), Loch Goil (*Mr. D. Robertson*), Tarbert, Loch Fyne (*Scotch Fishery Laboratory*).

Genus SIRIELLA, Dana.

(= *Cynthia*, Thompson.)

The more tangible generic characters are as follows:—Antennal scale subrhomboidal, the external margin naked until it terminates in a spine, whence it slopes to meet an inner margin, and is similarly setose; the scale has a small terminal joint, generally furnished with five setæ. Peræopods seven-jointed, the terminal joint or finger biarticulate and nail-formed, at the end of preceding joint a dense bunch of setæ, which are microscopically spined. Telson elongated, linguiform, entire at the apex, furnished with marginal and terminal spines, so arranged that smaller spines alternate with larger. Outer uropods two-jointed, first joint without setæ on external margin, but furnished with a series of spines, the three distal spines exceeding the others in size.

Pleopods of female as in *Mysis*; of male well developed, consisting of two multiarticulate swimming branches, with a curious two-lobed appendage attached to the base of the inner branch, one of these lobes being more or less spirally coiled.

Siriella Clausii, G. O. Sars.

Siriella Clausii, G. O. Sars, Middelhavets Mysider, 1876, p. 81, pls. xxix.-xxx.

Rostrum acute, triangular, not reaching beyond middle of first joint of antennules. Antennules with only one seta on inner margin of last joint of peduncle. Antennal scale subrhomboidal, rather narrow, of nearly equal breadth throughout, not quite reaching the end of peduncle of antennules, its extremity extending considerably beyond the spine of external margin. Peræopods slender, the finger very slender, its first joint longer in its lesser (that is front) length than broad; second joint or nail very slender and delicate, only slightly bent. Telson terminating in three spinules of equal length and two setæ between the distal lateral spines; sides of telson having three or four spines at base, separated by an interval from those which follow; on the distal portion three to five smaller spines occupying the intervals between the larger spines. Uropods wider than in *crassipes*, the outer with ten to twelve spines on exterior margin of first joint; second joint broader in proportion than in *crassipes*, half as long again as broad. Inner uropods with spines throughout entire length of inner margin to the otolith, but not so crowded towards the base as in *crassipes*; smaller spines alternating with the larger on upper portion, but the four or five most distal spines without smaller intermediates.

Tarbert, Loch Fyne, April 1886 (*Scotch Fishery Board Laboratory*).

Goletta, Cagliari, Syracuse, Messina, and Spezzia, in the Mediterranean (*G. O. Sars*).

[Dec. 15, 1886.—Since received by me from Trieste (*Dr. Koelbel*).]

The distinguishing characters of *S. Clausii* are the single seta on inner margin of last joint of peduncle of antennules, the slender legs and claws, and three equal-sized spinules between the ultimate spines of the telson.

Siriella norvegica, G. O. Sars.

Siriella norvegica, G. O. Sars, Untersog. over Christianiafjordens Dybvandsfauna, 1869, p. 30; Monog. over de ved Norges Kyster forekommende Mysider, 1879, p. 24, pls. xvii. and xviii.

Very like the last in general characters and in rostrum,

antennal scale, peræopods, &c.; but it attains a larger size, 19 millim. as against 10 millim. The following are points of distinction:—Last joint of peduncle of antennules with three setæ on inner margin; antennal scales perhaps rather longer, reaching end of peduncle of antennules, and rather wider in the middle than towards extremity. General character of telson as in last species, but the extremity having a central small spinule, flanked on each side by a still more minute spinule and pair of setæ between the ultimate spines. Outer uropods with seventeen to twenty-five spines on outer margin of first joint. Inner uropods with smaller spines alternating with larger throughout the inner margin, except between the last and penultimate spines.

Norway, Christiania Fiord and west coast (*G. O. Sars*); Lervig, Hardanger Fiord (*A. M. N.*).

Siriella norvegica has not as yet been found on our coast, but may be expected to occur. Its characters are given here, as well as those of the next species, for comparison with their very close allies.

Siriella crassipes, *G. O. Sars.*

? *Cynthia Flemingii*, *H. Goodsir*, *Bell*, *British Stalk-eyed Crustacea* 1853, p. 379 (mas).

Siriella crassipes, *G. O. Sars*, *Middelhavets Mysider*, 1876, p. 89, pl. xxxii.

In general characters very near the two preceding species, but the whole form is somewhat more robust in proportion to size, and the legs are much stronger. The following will supply diagnostic characters.

Antennules with three setæ on inner margin of third joint of peduncle. Antennal scale less parallel-sided than in *Clausii*, widening slightly about the middle, as in *norvegica*. Peræopods stout and strongly built, the joints more flattened and wider in proportion to their length than in the two preceding species; finger with first joint not longer in lesser (front) length than broad, second joint or nail strong and well curved. Telson terminating in a small spinule, flanked on each side by the usual setæ, and a more minute spinule between the ultimate pair of spines; three or four basal spines of lateral margin, as usual, separated by an interval from following spines; on hinder portion two to six smaller spines (varying in number according to size of specimen) in the intervals between the larger spines. Uropods narrow; outer with nine to twelve spines on external margin of basal joints, terminal joint twice as long as broad. Inner uropods with smaller spines alternating with the larger on the upper half

of inner margin, but eight or more distal spines without such smaller spines between them.

This species has been known to me as a member of our fauna for the last twenty-five years, at which time I found it at Cullercoats, Northumberland. Specimens are also in my collection from Banff (*T. Edward*); Starcross, Devon (*C. Parker*, 1883); Jersey (*Sinel and Co.*, 1884).

It is recorded in 'The Life of a Scotch Naturalist' under the name *Mysis aculeata*, a MS. name by which I had called the female when first found.

Cynthia Flemingii, Goodsir, is a male of this genus, and most probably of this species; but it is impossible to identify it with any degree of certainty from the description given.

In the Mediterranean this species was found by Sars in company with *S. Clausii* at Goletta.

[Dec. 15, 1886.—Since received by me from St. Andrews (*Dr. M'Intosh*).]

Siriella Brooki, Norman, n. sp.

Very like the three species which have just been described. The rostrum is shorter and bent downwards at the extremity. The antennules have one seta on inner margin of last joint of peduncle. The peræopods are intermediate in thickness between those of *Clausii* and *crassipes*, the finger strong, the first joint not longer in its lesser (front) length than its breadth, second joint or nail strong and well curved. Telson terminating in a small spinule, flanked on each side by the usual setæ, and a very minute spinule between the ultimate spines. Uropods narrow, outer pair with ten to twelve spines on exterior margin of first joint; terminal joint twice as long as broad. Inner uropod with seven or more distal spines of interior margin without smaller intermediate spines, and even above these they only become decidedly smaller by degrees. Colour of specimens, which had been a few days in spirit, white, the eyestalks and peduncles of antennæ suffused with yellow; telson and uropods more or less stained with yellow or pink. Length from the end of antennal scale to extremity of uropod rather more than half an inch, or 14 millim. About a dozen specimens, including both sexes, examined.

Very near to *crassipes*, from which it differs in being more slender in general form, with less strong peræopods, and a single seta only on inner margin of ultimate joint of peduncle of antennules.

Possibly it may prove to be a variety of *crassipes*; but more extended observation is necessary to clear up this point.

With regard to the number of setæ on inner side of last

joint of peduncle of antennules, I may mention that in some specimens of *S. crassipes* I have not been able to make out more than two, and in one specimen of *S. Brooki* the left antennule has a second seta, while the right bears as usual one.

S. Brooki has been found at Tarbert, Loch Fyne, by the Fishery Board, in company sometimes with *S. Clausii*. I have named the species after Mr. G. Brook.

Siriella armata (M.-Edw.).

Cynthia armata, M.-Edw. Hist. Nat. d. Crust. ii. p. 463 (mas, *vide* G. O. Sars).

Mysis Griffithsiae, Bell, Hist. Brit. Crust. p. 342.

Mysis rostratus, Guérin, Iconog. Crust. pl. xxiii. fig. 3 (probably).

Siriella armata, G. O. Sars, Middelhavets Mysider, 1876, p. 96, pl. xxxv.

Animal very long and slender. Rostrum of great size, the extremity very acute and reaching the end of the second joint of the peduncle of the antennules. Antennal scale long and narrow, not quite so long as peduncle of antennules. Peræopods slender. Telson terminating usually in four equal-sized spinules and two setæ between the ultimate spines. Wide intervals between the larger spines of lateral margin, these intervals occupied by six to ten smaller crowded spines of nearly equal size. Uropods very long and unusually narrow; outer bearing very numerous (twenty-five to thirty) spines on external margin, second joint about one third to one half longer than broad. Inner margin of inner uropods with numerous spines, gradually increasing in length distally, and without admixture of smaller spines. Length $\frac{3}{4}$ inch, or 20 millim. The branchial appendage (?) of the second and following pleopods in the male is completely coiled.

The greatly developed rostrum at once distinguishes this species from the other British representatives of the genus; but another form from the Mediterranean, *Siriella frontalis*, M.-Edw., bears a close general resemblance, but the branchial appendages of the pleopods of male are wholly different and not coiled, and on this ground Claus has instituted a new genus—*Pseudosiriella*—for its reception*. There are three spinules at the termination of the telson in this species, and as many as fifteen smaller spines are in the intervals between the larger spines on the sides of the telson.

* *Pseudosiriella frontalis*, M.-Edw., is also a member of the British fauna. I have a drawing made many years ago, at a time when I had no other Crustacea than British, which undoubtedly represents the female of this species; but unfortunately no locality is under the drawing. The specimen was probably one sent to me for examination.

I have examined specimens of this species from Firth of Clyde, 1865 (*D. Robertson*); Starcross, Devon, 1884 (*C. Parker*); Jersey, 1884 (*Sinel and Co.*); Tarbert, Loch Fyne, 1885 (*Scotch Fishery Laboratory*); and unmistakable drawings have been sent to me of specimens taken at Plymouth (*Spence Bate*), and Castleton, Isle of Man (*G. S. Brady*). It has been recorded from Torquay (*Griffiths*) and Weymouth (*Wm. Thompson*). Milne-Edwards's type was from "Noirmoutiers," and Sars took it in the Gulf of Goletta.

[Dec. 15, 1886.—Since received from St. Andrews (*Prof. McIntosh*) and Trieste (*Dr. Koelbel*).]

Order CUMACEA.

Genus LAMPROPS, G. O. Sars.

Lamprops fasciata, G. O. Sars.

Lamprops fasciata, G. O. Sars, Om en i Sommeren 1862 foretagen Zoologisk Reise i Christianias og Trondhjems Stifter, 1863, p. 44; "Om den aberrante krebsdyrgruppe Cumacea" (Vid. Selsk. Forhandl. 1864), p. 66.

First sent to me as British by Mr. David Robertson, who found it at Helensburgh, in the Firth of Clyde; and (March 1886) taken by the Fishery Board Laboratory among sand at low water, Tarbert, Loch Fyne.

"Habitat rara in sinu Nidrosiensi prope urbem Stenkjær in prof. 12-20 orgyrum, adque insulas Lofotenses, ubi unicum inveni exemplar" (*G. O. Sars*).

It may at once be known from the other described species of the genus by three oblique folds which are present down the sides of the carapace.

The above is the only species of the genus as yet known in the British sea. Other closely allied forms which were included in this genus have recently been separated by Sars under the name *Hemilamprops*. Of this restricted genus we have in Britain the following representatives. *Hemilamprops* is a MS. genus of G. O. Sars, which he has not yet defined.

Hemilamprops rosea (Norman).

Vaunthompsonia rosea, Norman, Trans. Tyneside Nat. Field-Club, v. (1862), p. 271, pl. xiii. figs. 1-3, ♀.

Cyrianassa elegans, Norman, *loc. cit.* p. 275, pl. xiv. figs. 1-6, ♂.

Lamprops rosea, G. O. Sars, "Om den aberrante krebsdyrgruppe Cumacea" (Vid. Selsk. Forhandl. 1864), p. 64.

Hemilamprops rosea, G. O. Sars, "Oversigt af Norges Crustaceer" (Christ. Vidensk. Forhandl. 1882), p. 11.

Fifty to one hundred miles east of Tynemouth, Northum-

berland (*A. M. N.*); Lough Foyle, Ireland, 15 fathoms ('*Porcupine*' Expedition).

In Norway I have dredged it at Drobak, in the Christiania Fiord, and off Lervig, in the Hardanger Fiord; also at Florø. Sars has found it as far north as the Lofoten Islands.

Hemilamprops cristata, G. O. Sars.

Lamprops cristata, G. O. Sars, "Nye Dybvandscrustaceer fra Lofoten" (Vid. Selsk. Forhandl. 1869), p. 13.

Lamprops cristata, Norman, "Crustacea Cumacea of the '*Lightning*,' '*Porcupine*,' and '*Valorous*' Expeditions," Ann. & Mag. Nat. Hist. ser. 5, vol. iii. 1879, p. 68.

Hemilamprops cristata, G. O. Sars, "Oversigt af Norges Crustaceer" (Christ. Vidensk. Forhandl. 1862), p. 11.

Firth of Clyde, 1860 (*Mr. D. Robertson*); south of Rockall, lat. $56^{\circ} 7' N.$, long. $14^{\circ} 19' W.$, 630 fathoms ('*Porcupine*,' 1869).

On the Norwegian coast I have taken it in 150 to 180 fathoms, off Midtö lighthouse, and in Stoksund, 80 to 100 fathoms, both in the Hardanger Fiord.

Sars has also dredged it in the Hardanger Fiord off the island of Husø, 100 to 105 fathoms, and at Lofoten in 120 to 200 fathoms.

There are six European species belonging to these two genera. The genera are distinguished from all other Cumacea by having a well-developed, long, flattened, linguiform telson, which is broad at the extremity and terminates in several spines; the carapace is small, the first three pairs of feet have fully developed natatory palps, and the two following pairs two-jointed rudimentary palps. In the male the antennules have a bunch of cilia at the extremity of the peduncle, and the pleon is furnished with three pairs of natatory feet.

The following more salient features will enable the species to be separated. It is probable that more of these forms await discovery in our own seas.

Lamprops fasciata, G. O. Sars. Carapace with three well-developed oblique folds on the sides. Telson with one or two pairs of lateral spines, and terminating in five spines.—Britain, Norway.

Lamprops fuscata, G. O. Sars. Carapace smooth, rostrum acutely produced. Telson with one or two pairs of lateral spines, terminating in five spines.—Norway.

Hemilamprops rosea (Norman). Carapace smooth, rostrum not produced, the front forming nearly a right angle. Eyes well developed. Telson not much contracted towards the extremity, with one or two pairs of lateral spines, and termina-

ting in seven or eight spines. Animal more or less stained with a rich rose colour.—Britain, Norway.

Hemilamprops assimilis, G. O. Sars. Carapace and rostrum nearly as in the last; eyes rudimentary. Telson suddenly contracted near the extremity, with one pair of lateral spines, and terminating in six spines. Integuments very delicate. Animal without colour.—Finmark.

Hemilamprops uniplicata, G. O. Sars. Carapace with one oblique fold on the sides. Telson with four or five pairs of lateral spines, and terminating in three spines.—Norway.

Hemilamprops cristata, G. O. Sars. Carapace having the anterior half of the dorsal line denticulately serrated. Telson with two or three pairs of lateral spines, and terminating in three spines.—Britain, Norway.

The males in all cases have the carapace smooth, and therefore present greater difficulties in determination than the females, to which the above characters, as regards the carapace, refer. To determine the males it will be necessary to refer to the full description given by Sars of the species.

Genus DIASTYLIS, Say.

Diastylis rugosa, G. O. Sars.

Diastylis rugosa, G. O. Sars, "Om den aberrante Krebsdyrgruppe Cumacea og dens nordiske Arter" (Vid. Selsk. Forhandl. 1864), p. 41; Nye Bidrag til kundskaben om Middelhavets Invertebrat-fauna, II. Middelhavets Cumaceer, 1879, p. 98, pls. xxxiv.—xxxviii.

Diastylis strigata, Norman, "Cumacea of the 'Lightning,' 'Porcupine,' and 'Valorous' Expeditions," Ann. & Mag. Nat. Hist. ser. 5, vol. iii. p. 62 (mas adultus).

The Fishery Board has found specimens of this species at Tarbert, Loch Fyne.

Its known distribution is Christiania Fiord, 10 to 12 fathoms; Christiansund; Utne, Hardanger Fiord, 30 to 50 fathoms (*G. O. Sars*); Denmark; West France; Syracuse, Messina, and Naples, in Mediterranean (*G. O. Sars*).

Valentia harbour, Ireland, female, and off Valentia, tow-net, 1870 (*A. M. N.*); Lough Swilly, County Donegal, in 15 fathoms ('*Porcupine*' *Exped.* 1869); Drobak, Christiania Fiord, 1879, and Lervig, Hardanger Fiord, 1878, Norway (*A. M. N.*).

Genus PSEUDOCUMA, G. O. Sars.

Pseudocuma cercaria (Van Beneden).

Leucon cercaria, Van Beneden, Recherches sur la Faune littorale de Belgique, Crustacés, 1860, p. 85, pl. xiv.

- Pseudocuma bistriata*, G. O. Sars, "Om den aberrante Krebsdyrgruppe Cumaceer" (Vid. Selsk. Forhandl. 1864), p. 70.
 ? *Cyrianassa longicornis*, Spence Bate, Nat. Hist. Review, vol. v. 1858, p. 203.
Cuma bella, Meinert, "Crust. Isop. Amphip. et Decapoda Daniæ" (Naturhist. Tidssk. 3 R. 11 B. 1877), p. 179.
Cuma cercaria, Meinert, "Crust. Isop. Amphip. et Decapoda Daniæ" (Naturhist. Tidssk. 3 R. 12 B. 1880), p. 497.
Pseudocuma cercaria, G. O. Sars, Middelhavets Cumaceer, 1879, p. 114, pls. xl.-xlii.

This small species seems to be the most numerically abundant of the Cumacea in the British seas. Its distribution is as follows:—

Belgium (*Van Beneden*); Denmark (*Meinert*); Norway, from Christiania to the Lofoten Islands (*G. O. Sars*); Mediterranean, at Goletta, Messina, and Syracuse (*G. O. Sars*).

I can myself testify to the following localities:—Whitby, Yorkshire, and Seaton Carew, County Durham (*A. M. N.*); Sunderland (*G. S. Brady*); Cumbrae, Firth of Clyde (*D. Robertson*); Tarbert, Loch Fyne (*Fishery Board Laboratory*); Naples (*Zool. Stat.*).

It is a shallow-water form, found on a sandy bottom, usually in 0-10 fathoms. Now first recorded as British.

XII.—Description of a new Butterfly allied to *Vanessa antiopa*.

By ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

FOR some years past I have held the view that what is generally understood by the term species (that is to say, a well-defined, distinct, and constant type, having no near allies) is non-existent in the Lepidoptera, and that the nearest approach to it in this order is a constant, though but slightly differing, race or local form—that genera, in fact, consist wholly of a gradational series of such forms.

In opposition to this view certain "species" are cited as isolated, or in no way united by existing intergrades to their nearest allies, from which, moreover, they show such wide differences that the existence of intergrades is regarded as highly improbable. One of the best known and, at the same time, widely distributed of these apparently isolated species is *Vanessa antiopa*, which, although slightly modified locally in size and tint (the Central-American form being usually smaller and the North-American larger and more heavily speckled than the European type), yet has no described allies